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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,564	12/21/2001	David W. Beddome	90099010	7106

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EXAMINER
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DUONG, THO V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/037,564

Applicant(s)

BEDDOME ET AL.

Examiner

Tho v Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-57 and 59 is/are pending in the application.
- 4a) Of the above claim(s) 3-6, 9, 10, 12-31, 33-36, 39-41, 43-48, 50, 51, 54 and 55 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 57 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7, 8, 11, 32, 37, 42, 49, 52, 53 and 59 is/are rejected.
- 7) ☒ Claim(s) 38 and 56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Receipt of Applicant's amendment filed 9/8/2004 is acknowledged. Claims 1-57 and 59 are pending. Claims 3-6,9,10,12-31,33-36,39-41,43-48,50,51,54 and 55 stand withdrawn.

#### *Response to Arguments*

In view of applicant's amendment and Remarks, the previous rejections of claims 1,2,7,8,11,37,38,42,49,52,53,57 and 59 under 35 U. S.C 10b (b) as anticipated by Altoz or La Haye have been withdrawn.

Applicant's argument with respect to claim 59 has been considered but is moot in view of the new ground(s) of rejection.

Applicant's arguments filed 9/8/2004 against rejection of claims 1,2,7,8,11,32,37,49 and 52 under 35 U.S.C 103 over Matsuo Shinobu in view of La Haye have been fully considered but they are not persuasive. Applicant argues that there is no motivation or suggestion as disclosed by Shinobu or Haye to choose or to substitute a fluid biased, deformable member for the "metallic bellows" and the coil spring. The examiner disagrees with the applicant's argument because Shinobu reference (paragraph 20) as a primary reference has suggested to use of other elastic material means in place of the coil spring within the bellow for absorbing the thermal expansion of the heat exchanger. Reference to Haye teaches a heat exchanger that has a bellows that can use either coil spring or compressed air (fluid base) as the elastic material disposed within the bellows for performing the expansion or contraction function of the bellows. Haye further discloses (column 6, line 46-51) that the air is preferably in use because the coil spring would be subjected to mechanical stress and failure problem. Therefore, the motivation of substituting a fluid base such as air over a coil spring is clearly stated in Haye reference. The

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rejections of claims 1,2,7,8,11,32,37,49 and 52 under 35 U.S.C 103 over Matsu Shinobu in view of La Haye remain proper.

Applicant's arguments filed 9/8/2004 against rejection of claims 1,2,7,8,11,32,37,42,49 and 52-53 under 35 U.S.C 102 as anticipated by Gorbell have been fully considered but they are not persuasive. Applicant argues that the fuel cell stack (10) is not a core comprising a stack of plates to facilitate heat exchange. The examiner disagrees because Gorbell discloses (figure 1 and column 1, lines 9-20) that the fuel cell stack (10) comprising a series of flat interconnect plates, planar fuel cells and gaskets are placed between each interconnecting plate to seal a gas therein. During the operation, the fuel cell stack temperature increases from ambient to an elevated operating temperature, which would inherently exchange heat with the environment because there is a different in temperatures. Without the interconnecting plates, the fuel cell stack is incomplete and is not able to operate nor exchange heat. Therefore, the rejections of claims 1,2,7,8,11,32,37,42,49 and 52-53 under 35 U.S.C 102 as anticipated by Gorbell remain proper.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 59 is rejected under 35 U.S.C. 102(b) as being anticipated by Mitsuhashi et al. (US 5,385,203). Mitsuhashi discloses (figures 1-2 and 5) a heat exchanger comprising a core (50) having a variable length and comprising a stack of plates (52) to facilitate heat exchange; a support structure, wherein the core (50) is received by the support structure, wherein the support structure comprises a fixed member (1) and attached bellows (1C,3,4) for accommodating variations in the length of the core while applying a biasing force to the core, wherein the bellows comprises two plates (1c,3) with an expandable wall (4) mounted between the plates; and the bellows surrounds the core (50), therefore the bellows is wider than the core.

Claims 1,2,7-8,11,32,37,42,49,52 and 53 are rejected under 35 U.S.C. 102(e) as being anticipated by Gorbett et al. (US 6,703,154). Gorbett discloses (figures 1,3 and column 1, lines 9-21) a heat exchanger comprising a core (10), which comprises of a plurality of interconnect plates capable of facilitate heat exchange (See argument section), having variable length within a first end and a second end; and a support structure (12,14) connected to the core, wherein the core is received by the support structure. The support structure comprising a fixed member and a fluid biased deformable member such as bellows (18) wherein the fixed member comprises a first section (12) and a second section (14) being positioned about the core; the first section (12) abuts the first end of the core and the bellows (18) is mounted between the core and the second end (14) of the fixed member. Gorbett further discloses (figure 1) that the bellows section comprising two plates (30,32) and an expandable side wall (34) mounted between the first and the second plates.

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2,7-8,11,32,37,49 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo Shinobu (JP 408029077A) in view of La Haye (US 4,134,449). Matsuo discloses (figures 1-3) a heat exchanger comprising a core (1,4), which includes a stack of plates (11,13), having a variable length; a support structure (5,20,21), wherein the core is received by the support structure, wherein the support structure comprises a fixed member (5,20) and an attached biased deformable member (21) such as a bellows for accommodating variation in the length of the core while applying a biasing force to the core; the core (1,4) comprises a first end (4a) and a second end (4b), wherein the variable length of the core is set between the first end (4a) and the second end (b); the fixed member (5,20) comprises a first end section (5) and a second end section (20), wherein the first end and the second end sections (5,20) are positioned about the core, wherein the first end section (5) abuts the first end (4a) of the core and wherein the bellow (21) is mounted between the second end core (4b) and the second end (5) of the fixed member, so that bellow is deformed as the length of the core varies. Matsuo Shinobu does not disclose that the bellows is fluid biased deformable member. Matsuo further discloses (paragraph 20) that the bellow (21) can be biased by a coil spring or other material as long as it absorbs spacing fluctuation. La Haye discloses (figure 1 and column 6, lines 46-51) a heat exchanger that has a compressed gas bellow (10), which is a fluid-biased deformable member,

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disposed between a core (13) and a fixed end of a support (11) for accommodating variation of the length of the core accordingly to the internal gas pressure without using a coil spring, which would be subjected to mechanical stress or failure problem. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use La Haye's teaching in Matsuo's heat exchanger for accommodating variation of the length of the core accordingly to the internal gas pressure without using a coil spring, which would be subjected to mechanical stress or failure problem.

#### *Allowable Subject Matter*

Claim 57 is allowed.

Claim 38 and 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Tho Duong whose telephone number is (703) 305-0768. The examiner can normally be reached on from 9:30-6 PM.

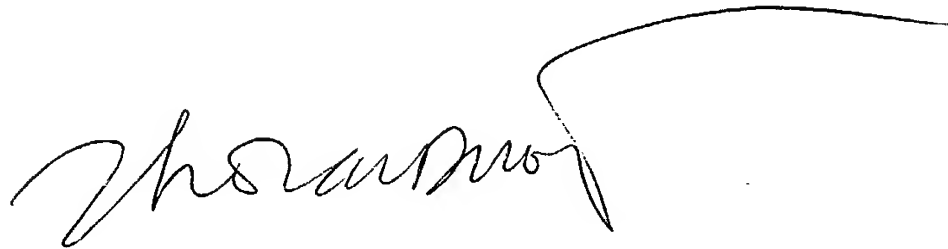
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet, can be reached on (703) 308-0101. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



TD

October 22, 2004



Tho Duong

Patent Examiner.